UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/567,437 | 02/07/2006 | Hideyuki Ueda | 043888-0444 | 8476 |

53080 7590 06/09/2009

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096

| EXAMINER | |
|---|---|
| HAN, KWANG S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1795 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 06/09/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/567,437 | UEDA ET AL. | |
| | Examiner | Art Unit | |
| | Kwang Han | 1795 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *09 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/18/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

**FUEL CELL SYSTEM**

Examiner: K. Han SN: 10/567,437 Art Unit: 1795 June 10, 2009

## Detailed Action

1. The Applicant's amendment filed on January 9, 2009 was received. Claims 1, 4, 5, and 7 were amended. Claim 9 was added.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Drawings*

3. The drawings were received on January 9, 2009. These drawings are acceptable. The objections to the drawings have been removed.

### *Claim Rejections - 35 USC § 103*

4. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Gorman et al. in view of Grot on claims 1, 4, and 5 are withdrawn, because claims 1, 4, and 5 have been amended.

5. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Gorman et al. in view of Grot as applied to claim 1 and further in view of Corey et al. on claims 2, 3, and 8 are withdrawn, because independent claim 1 been amended.

6. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Gorman et al. in view of Grot as applied to claim 1 and further in view of Haga et al. on claim 6 is withdrawn, because independent claim 1 been amended.

7. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Gorman et al. in view of Grot as applied to claim 1 and further in view of Sims et al. on claim 7 is withdrawn, because independent claim 1 been amended.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dohle et al. (WO 03/047010, using US 2005/0084729 for translation and citation) in view of Grot (US 6641862).

Regarding claims 1 and 4, Dohle is directed towards a PEM fuel cell system with a device for waste gas cleaning device (purifying apparatus) that has a porous layer with a catalyst layer having a first flow path from which waste gas from the fuel cell is provided and a second flow path for supplying an oxidizing agent disposed on opposite sides of the layer (Figure 1) [0010, 0015, 0018]. Dohle discloses the anode effluent [0011] being directed towards the cleaning device without being mixed with air in advance (Figure 2, left figure) [0020] but is silent towards the effluent from the anode being directed through a porous sheet.

Grot teaches the use of diffusion layers (15, 15A) on opposing sides of a catalyst layer region (Figure 3, Stage E; 3:21-26) for the benefit of permitting diffusion of reactant gas to the catalyst layer for both gas flow channels (1:36-41). It would have

been obvious to one of ordinary skill in the art at the time of the invention to use two diffusion layers on opposing sides of a catalyst layer device because Grot teaches this structure provides for the benefit of permitting diffusion of reactant gas' to the catalyst layer for both gas flow channels. It is well known in the art to use diffusion layers to help evenly distribute reactant gas to a catalytic material.

Regarding claims 2 and 8, Dohle discloses the fuel cell to be a direct alcohol fuel cell in which an organic fuel (methanol) is directly supplied to the anode and air is supplied to the cathode [0007, 0010].

Regarding claim 3, Dohle discloses the effluent discharged from the anode is cleansed without being supplied to the anode again (Figure 2).

Regarding claim 7, Dohle discloses a catalyst for the device including platinum and palladium [0010].

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dohle et al. and Grot as applied to claim 1 above, and further in view of Gorman et al. (US 6124054).

The teachings of Dohle and Grot as disclosed above are herein incorporated. Dohle and Grot are silent as to second flow path to include air discharged from the cathode.

Gorman teaches a device to process an anode effluent to a catalytic converter with a portion of the cathode exhaust from the fuel cell is diverted to the catalytic converter to provide oxidant for the catalytic burning of the effluent (3:66-4:5). It would

have been obvious to one of ordinary skill in the art at the time of the invention to divert cathode exhaust from a fuel cell to the catalytic device of Dohle and Grot because Gorman teaches it provides oxidant for catalytic burning.

10. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dohle et al. and Grot as applied to claim 1 above, and further in view of Luft et al. (US 6509112).

Regarding claims 6 and 9, the teachings of Dohle and Grot as discussed above are herein incorporated. Dohle discloses the catalytic conversion of the waste gas of the fuel cell to be accelerated by the intrinsic heat of the exhaust air [0012].

Luft teaches that a direct methanol fuel cell has an operating temperature that can take place between 60° and 160° C (4:8-10). It would have been obvious to one of ordinary skill in the art at the time of the invention that the purifying device of Dohle would operate at a temperature range between 60° and 160° C because Luft teaches this temperature range is the operating temperature for a direct methanol fuel cell and the device of Dohle uses the intrinsic heat of the exhaust air coming from the fuel cell. It has been held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05).

***Response to Arguments***

11. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact/Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-

5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795